

# **Traffic Management Guide**



**Michigan Department of State Police  
Special Operations Division  
Traffic Services Section  
East Lansing, Michigan**

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The purpose of this Traffic Management Guide is to assist law enforcement professionals in effectively managing local traffic problems, and to document the results. Managing traffic problems is essential if they are to be corrected. The guide is divided into the following four sections:

1. Problem Identification
2. Plan Development
3. Plan Implementation
4. Evaluation

## **Problem Identification**

For the purposes of this guide, a traffic problem is a specific location where there is a high incidence of crashes, violations, or traffic delays.

### Recognizing a Problem

The first step in correcting a traffic problem is recognizing that a problem exists. Traffic problems may be detected and reported by citizens, the media, police officers, or businesses. When a traffic problem is reported, it may be described vaguely. A citizen may report that, “Cars are driving too fast in my neighborhood.” Attempt to determine the answers to the following questions:

- Who is causing the problem? Passenger cars, motorcycles, commercial vehicles, pedestrians.
- What is being done? Is a violation being committed, crashes occurring, heavy traffic?
- When is it being done? A specific day of the week, just weekends, approximate times?
- Where is it being done? A specific location, not just “I-75.”
- How is it being done? How and how often.
- Why is it being done? The final question in problem identification. Contributing factors may be commercial development, lack of traffic control devices, traffic signal timing, or an increase in use due to road closures.

## Gathering Information

Once a traffic problem has been recognized, gather data to assist in determining the root cause of the problem. When gathering information, at a minimum you should consult with the following:

- Troopers or officers at your work site
- Local police agencies
- District traffic services sergeant  
Speed surveys, and traffic control orders.
- District reconstructionist  
Factors contributing to crashes
- Highway engineers  
Your local highway or MDOT engineer should be requested to assess the problem location to determine if enhancements could be made to reduce or eliminate the traffic problem.

## Additional Information

You may also be able to obtain information from the following sources:

- National Highway Transportation Safety Administration (NHTSA)
- Office of Highway Safety Planning (OHSP)
- Criminal Justice Information Center (CJIC)
- Local traffic safety groups
- The University of Michigan Transportation Research Institute (UMTRI)
- Insurance companies

If your traffic problem is specific to your local area, and it most likely is, then you will need to gather specific traffic data about the problem. Through observational surveys, you can determine the

average number of traffic violations (such as red-light running) for a set amount of time (15 minutes to one hour), or the average length of time

that traffic is delayed. The purpose of the surveys is to find a measurable variable (violations or time delay) to use in determining the effectiveness of your traffic plan.

## Information Analysis

Once you have obtained specific data for your traffic problem, you can analyze the data. Look for patterns and correlations between the problem and the time of day, vehicle type, frequency, or amount. Some correlations are obvious, such as crashes increase when violations increase. Others are less obvious, such as an increase in the number, or severity of crashes during special events.

## Problem Definition

After reviewing the information, you should have a better idea of the actual problem and contributing factors. To accurately define the problem, answer the following questions using the Identify the Problem template:

- Who is involved?
- What is occurring?
- When is it occurring?
- Where is it occurring?
- How often and how much is occurring?
- How much is occurring?
- Why is it occurring?

## Plan Development

When a traffic problem is specific, the intervention should also be specific and measurable. With an accurate definition of the problem, a plan may be developed to solve the specific traffic problem. The Plan Development template is provided to assist you in developing your plan.

### Goal

The goal is a statement that explains the direction of the intervention. The goal of your plan should be to solve or greatly reduce a specific traffic problem. If the problem statement was detailed, such as “vehicles are running the stop sign at a rate of three every 15 minutes,” then the goal should be to reduce the number of violations by a specific amount.

### Collaboration

The first step in collaboration is to seek out partners who also share an interest in solving the traffic problem. The interest of the partners could be motivated by a number of factors, from financial benefits, to improving the community. Partners could be almost anyone, or any organization, but it is usually someone directly affected by the traffic problem.

There are several groups that should always be involved or consulted. Local law enforcement can be crucial to the success of a traffic plan. Local law enforcement may want to be involved in each phase of the process, while others would prefer just to contribute enforcement, or other assistance. The county road commission should also be consulted. Road commissions should be able to assist in evaluating existing traffic control devices and road condition. They may also be able to suggest improvements, such as left-turn phasing, or grooved shoulders. The Michigan Department of Transportation should be consulted when state trunklines are involved. Partners may also be able to provide additional information when identifying the problem, and should be consulted early in the process.

### Success Measures

The problem definition should have provided at least one variable to measure the success of your plan. If an average of three cars every 15 minutes are disregarding a traffic control device, then your measurable is the number of violations of disregarding a traffic control device. After implementing your plan, you would expect the number of violations to decrease. For many traffic problems, the most important change would be a decrease in the number of crashes, injuries, and fatalities however, it is difficult to use

crashes as a measurement for a specific traffic problem, since there may be only a few crashes per year.

## Strategy

The basic strategy to correct a traffic problem is to use engineering, education, and enforcement to have a positive and lasting affect the traffic problem. Depending on the traffic problem, the strategy may focus on one element of the strategy more than the other elements. While the goal explains the direction of your plan, the strategy states how you will get there.

## Engineering

The engineering strategy should be considered when the problem is related to roadway design, traffic control devices, or traffic flow. Contact your local county road commission or MDOT engineer for assistance.

## Education

Education is used most effectively in conjunction with enforcement when the traffic problem is the result of a lack of knowledge, or confusion with the law. In these cases, the drivers would comply with the law if they understood it properly. Examples are recently enacted laws, such as the standard seat belt law, and the yielding to stationary emergency vehicles law. This is not to say that there should not be enforcement, but that there should be an educational component as well. Contact the Michigan Resource Center for education information.

## Enforcement

The enforcement strategy is best used when the traffic problem involves traffic violations where the driver is aware, or should be aware, that his or her actions violate the Michigan Vehicle Code. Examples are speeding, following too closely, disregarding traffic control device (red light), and other “hazardous” violations. In these instances, the driver knowingly violates the law. Contact your district traffic services sergeant, or the Traffic Services Section for enforcement information.

## Plan Implementation

After identifying the goal, partners, success measurements, and strategy, the Plan Implementation template should be completed. The Plan Implementation template should list the following:

- Name and agency
- Focus: engineering, education, or enforcement
- Date and Time
- Location
- Special Instructions

### Measurements

Before implementing your plan, take pre-implementation measurements. The measurements will help you to measure and validate your results. If your goal is to reduce cars running red lights, then you should measure the number of red-light-running violations in a given time period before implementing any engineering, education, or enforcement efforts.

### Engineering

Highway engineers are road design and safety experts, and should be consulted regarding improvements. There are many changes that could help to reduce the traffic problem, and do not require extensive road work, such as traffic signal timing, increasing the size of traffic control devices, left-turn phasing, grooving pavement, increased lighting, and clearing the right-of-way.

### Media

The media can be very effective in transmitting your enforcement message to the community. There are several ways of using the media, including offering ride-alongs, providing media releases, and offering interviews. Except in unusual circumstances, the media should be notified of the enforcement efforts before they begin. This will allow the media time to provide coverage of the enforcement, and will make the community aware of the enforcement, rather than just the motorists who are stopped, or who are driving by. Contact the Michigan State Police Public Affairs office for media information.

## Enforcement

According to the National Highway Traffic Safety Administration (NHTSA), enforcement is the key to changing driver behavior. A sound enforcement plan should be developed that addresses the traffic problem as identified. A multi-agency response is preferable to only having your work site conduct enforcement. Once the enforcement plan is developed, the enforcement should be conducted according to the plan. Complete the Plan Development and the Plan Implementation templates.



## Evaluation

### Measure the Results

Measurements should be taken shortly after the conclusion of the enforcement plan. The conditions should be as close as possible to when the measurements were taken before implementation (same day of the week, time, and weather conditions).

### Evaluate the Results

Evaluate the plan based on the comparison of measurements taken before, during, and after implementation. If there is no change in the measurement, or a change away from your goal, you will have to reevaluate your plan. If there is a change toward, but less than your goal, you may want to reevaluate your plan, and possibly add a second or third component, such as media or education to your enforcement plan. The success of the plan does not entirely hinge on reaching your goal. The plan can be considered effective if there is a positive increase in safety, whether it is in public awareness, or fewer violations and crashes.

### Monitor the Results

Once you have achieved your desired results, you should continue to monitor the measurements every three to six months. If the problem returns, your enforcement plan should be repeated. The residual effects of traffic management plans vary greatly. In some locations, four hours of enforcement may be enough to change driving behavior for six months, while in other areas the effects may be considerably less.

## 1. Problem Identification

### A. Gather Information

1. Citizens
2. Police Officers
3. Businesses
4. Crash Data

### B. Information Analysis

1. Determine Frequency
2. Determine Type of Problem
  - a. Traffic Flow
  - b. Traffic Violations
  - c. Traffic Crashes

### C. Problem Definition

1. Who is involved
2. What is occurring
3. When is it occurring
4. Where is it occurring
5. How much is occurring and how often
6. Why is it occurring

## 2. Plan Development

### A. Goal

### B. Collaboration

### C. Success Measures

### D. Strategy

1. Engineering
2. Education
3. Enforcement

## 3. Plan Implementation

### A. Take Measurements

### B. Engineering Improvements

### C. Media Campaign

### D. Enforcement

## 4. Evaluation

### A. Evaluate the results

1. Was the goal met
2. Was the problem corrected

### B. Monitor the results

1. Every 3-6 months
2. Additional actions as necessary

# Traffic Management Guide

## Step 1. Problem Identification (With sample data)

### Report of Problem (Patrols, crash reports, observations, citizens)

Date Reported:	Time Reported:
Name: Citizen, trooper, officer	Phone:
Street Address:	City:
State:	Zip Code:

### Problem as Reported

“I almost got hit today. Cars are constantly running the stop sign on Maple Street.”

### Questions to Answer

Who: The violator	Where: Exact location
What: The violation	How much & how often: Violations in ¼ hr
When: Timeframe	Why: Traffic changes, road work, detours

### Gather Information

Who: Observation survey	Where: Problem location
What: Observation survey, citations, crash reports	How much: Observation survey to determine violation frequency.
When: Observation survey, citations, crash reports	Why: Observations, MDOT, road commission, statements from violators.

### Information Analysis

Problem Type: Traffic flow, violations, crashes, other:	Where: Maple and Oak in City
What: Specific problem. Running stop sign	How much: Frequency. 1 car every 5 minutes.
When: Patterns, morning, noon, evenings, rainy weather, seasonal.	Why: Contributing factors

### Problem Definition

Who: Motorists going to and from work	Where: Maple and Oak
What: Running a stop sign	How much: May not know initially
When: M-F, (7-9 AM) and (4-6 PM)	Why: May not know initially

### Problem Statement (Define the problem in a sentence)

Passenger cars are running the stop sign at Maple and Oak at a rate of 1 every 5 minutes
Monday-Friday, 7-9 AM and 4-6 PM.

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## Step 2. Plan Development (With sample data)

**Goal** (The problem you want to reduce or eliminate)

Reduce the number of passenger cars running the stop sign at Maple and Oak from
1 every 5 minutes to 1 every hour.

**Partners**

Who	What	When	How
Engineering			
City engineer	Inspect location	7/20/03	Visually
Education			
MSP	Media release	7/30/03	Fax
City PD	Media release	8/1/03	Fax
Enforcement			
MSP Post	Stop sign enf.	Aug-Oct, 2003	Stationary patrol
City PD	Stop sign enf.	Aug-Oct, 2003	Stationary patrol

Note: See Implementation Plan for details.

**Success Measures**

Violations reduced to 1 every hour	

**Strategy**

Engineering Actions: highway engineer to review location, make appropriate changes
Education Actions: MSP21 and local PD will provide media releases and ride-alongs
Enforcement Actions: High-visibility MSP and local PD patrols on selected dates/times.





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## Step 1. Problem Identification

### **Report of Problem** (Patrols, crash reports, observations, citizens)

Date Reported:	Time Reported:
Name: Citizen, trooper, officer	Phone:
Street Address:	City:
State:	Zip Code:

### **Problem as Reported** (Information will have to be gathered)


### **Questions to Answer**

Who:	Where:
What:	How much & how often:
When:	Why:

### **Gather Information**

Who: Observation survey	Where: Problem location
What: Observation survey, citations, crash reports	Why: Observations, MDOT, road commission, statements from violators.
When: Observation survey, citations, crash reports	How much: Observation survey to determine violation frequency.

### **Information Analysis**

Problem Type: Traffic flow, violations, crashes, other:	Where: Maple and Oak in City
What: Specific problem. Running stop sign	How much: Frequency. 1 car every 5 minutes.
When: Patterns, morning, noon, evenings, rainy weather, seasonal.	Why: Contributing factors

### **Problem Definition**

Who:	Where:
What:	How much & how often:
When:	Why:

### **Problem Statement** (Put the “Define the Problem” information into a sentence)




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## Step 2. Plan Development

**Goal** (The problem you want to reduce or eliminate)


**Partners**

Who	What	When	How
TS Sergeant			
Reconstructionist			
Highway engineer			

Note: See Plan Implementation form for details.

**Success Measures** (The amount of change)


**Strategy**

Engineering Actions:
Education Actions:
Enforcement Actions:





## Checklist

### Problem Identification

- Gather information: Traffic services sergeant, highway engineer, reconstructionist
- Analyze the information. Look for correlations.
- Determine frequency, how often
- Determine type of problem: traffic flow, violation, or crashes

### Problem Definition.

- Answer the following questions:
- Who is involved
- What is happening
- When is it happening
- Where is it happening
- How much is happening
- How often is it happening
- Why is happening

### Plan Development

- Strategy focus: Engineering, Education, and Enforcement
- Select partners
- Complete Partners worksheet
- Select success measures
- Complete Success Measures worksheet
- Complete Plan Implementation worksheet

### Plan Implementation (Follow Plan Implementation worksheet)

- Take measurements before implementation
- Conduct engineering review and improvements
- Conduct media campaign
- Conduct enforcement
- Take measurements during implementation
- Take measurements after implementation
- Report enforcement activity to media and District Headquarters

### Evaluation

- Evaluate the results
- Was the goal met
- Was the problem corrected
- Report results to District Headquarters and Traffic Services Section
- Monitor the results
- Take measurements every 3-6 months
- Conduct additional actions as necessary

## Additional Information

Crash Reconstructionists: [http://mspweb/division/special\\_operations/tss/arspecialists.htm](http://mspweb/division/special_operations/tss/arspecialists.htm)

Criminal Justice Information Center: [http://www.michigan.gov/msp/0,1607,7-123-1593\\_24055---,00.html](http://www.michigan.gov/msp/0,1607,7-123-1593_24055---,00.html)

Michigan Department of Transportation: <http://www.michigan.gov/mdot>

Michigan Resource Center: [https://www.michiganresourcecenter.org/default.cfm?page\\_id=1](https://www.michiganresourcecenter.org/default.cfm?page_id=1)

Michigan State Police Grants and Special Enforcement: [http://www.michigan.gov/msp/1,1607,7-123-1589\\_3493\\_8191---,00.html](http://www.michigan.gov/msp/1,1607,7-123-1589_3493_8191---,00.html)

Michigan State Police Public Affairs Office: [http://mspweb/division/executive/Public\\_Affairs/publicaff\\_ndx.html](http://mspweb/division/executive/Public_Affairs/publicaff_ndx.html)

Michigan State Police Traffic Services Section: [http://mspweb/division/special\\_operations/tss/tss.htm](http://mspweb/division/special_operations/tss/tss.htm)

Office of Highway Safety Planning: [http://www.michigan.gov/msp/0,1607,7-123-1593\\_3504---,00.html](http://www.michigan.gov/msp/0,1607,7-123-1593_3504---,00.html)

Traffic Safety Sites: [http://mspweb/division/special\\_operations/tss/Sites.htm](http://mspweb/division/special_operations/tss/Sites.htm)

Traffic Safety Statistics: [http://www.michigan.gov/msp/0,1607,7-123-1645\\_3501\\_4626---,00.html](http://www.michigan.gov/msp/0,1607,7-123-1645_3501_4626---,00.html)

Please provide your suggestions, comments or questions regarding this guide to Sgt. Dan Davis at the Traffic Services Section by e-mail at [davisda@michigan.gov](mailto:davisda@michigan.gov) or by phone at (517) 336-6518.